



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/781,492	02/13/2001	Magdy S. Abadir	SC11403TS	9497

7590

04/02/2003

Motorola, Inc.,
Austin Intellectual Property Law Section
7700 West Parmer Lane, MD: TX32/PL02
Austin, TX 78729

EXAMINER

THOMPSON, ANNETTE M

ART UNIT PAPER NUMBER

2825

DATE MAILED: 04/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/781,492

Applicant(s)

ABADIR ET AL.

Examiner

A. M. Thompson

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-17 and 19-31 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,3</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Applicants' election of claims 8-31, without traverse, in Paper No. 6, is acknowledged. Claims 1-7 are cancelled. In this first Office Action on the merits, claims 8-31 are pending.

Specification

1. The disclosure is objected to because of the following informalities: At pages 3 and 4, in the Brief Description of the Drawings section, each sentence which begins with "Illustrated", should end with a period. .

Appropriate correction is required.

Claim Objections

2. **Claims 9, 11, 18 and 23** are objected to because of the following informalities: Pursuant to claim 9, at line 5, after the comma, delete the "and". Pursuant to claims 11 and 23, these claims reference "single-path components" and "multiple-path components". However, Applicants' specification uses the terminology *single-path component logic blocks* and *multiple path component logic blocks* (see specification, page 10). Pursuant to claim 18, Applicants' specification (page 8) and Figure 3, states that it is the false path *report* that is fed back to the static analysis tool, not just the false path. If the appropriate amendment is made to claim 18, then claim 13, from which claim 18 depends, will also require amendment to include mention of a false path report. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the **first** paragraph of 35 U.S.C. 112:

Art Unit: 2825

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. **Claims 21-31** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Pursuant to claims 21-31, these claims recite the limitation of a design analysis tool stored on a computer-readable medium that comprises a plurality of instructions. However, Applicants' specification does not enable this embodiment.

5. The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 11 and 23** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Pursuant to claims 11 and 23, these claims use the terms "single-path components" and "multiple-path components". However, Applicants' specification uses the terms *single-path component logic blocks* and *multiple-path component logic blocks*. It is unclear whether Applicants intend that the single-path and multiple path components reference be synonymous with the *single-path component logic blocks* and *multiple-path component logic blocks terms*. Applicants' specification references only a single use of the term single-path components and multiple-path components in the specification at page 10, lines 11-14, and even that reference is confusing since Applicants discloses and use single-path

component logic *blocks* and multiple-path component logic *blocks*. For examination purposes, the terms single-path components and multiple-path components indicate single-path component logic blocks and multiple-path component logic blocks.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Rejection of claims 8-10, 12-17, 19 and 20

8. **Claims 8-10, 12-17, 19, 20** are rejected under 35 U.S.C. 102(a) as being anticipated by the Bhadra et al. paper (the Bhadra paper) entitled A Quick and Inexpensive Method to Identify False Critical Paths Using ATPG Techniques: An Experiment with a PowerPC Microprocessor.

9. Pursuant to claim 8, which recites [a] method for identifying false paths comprising providing a path corresponding to a circuit design (page 72, § 2, col. 1, ¶ 1); determining whether a set of final value conditions are satisfied (page 72, § 2); determining whether a set of side value propagation conditions are satisfied (page 73, § 2); determining whether a set of initial value conditions are satisfied (page 72, § 2); determining whether the path is false based on at least one of the set of final value conditions (pages 72-73, § 2) , the set of side value propagation conditions (page 73, § 2) , and the set of initial value conditions (§ 2).

10. Pursuant to claim 9, further comprising determining whether a set of slower conditions are satisfied, and wherein determining whether the path is false is based on at least one of the set of final value conditions, the set of side value propagation conditions, the set of initial value conditions, and the set of slower path conditions (§ 2 in entirety).

11. Pursuant to claim 10, wherein the set of final value conditions and the set of side value propagation conditions correspond to a first time frame and the set of initial value conditions corresponds to a second time frame different from the first time frame (§ 2).

12. Pursuant to claim 12, wherein determining the conditions are performed by by an ATPG tool (§ 2 includes the use of an ATPG tool.)

13. Pursuant to claim 13, which recites [a] method for false path identification within a circuit design (Abstract; § 3) comprising receiving a first set of paths corresponding to the circuit design (§ 3; Figure 2); providing a set of conditions corresponding to at least one path of the first set of paths to an automatic test pattern generation tool (§ 3; Figure 2) , the ATPG tool having an ATPG model corresponding to at least a portion of the circuit design (§ 3); the ATPG tool generating a response to the set of conditions using the ATPG model (§ 3, the log file); and identifying a false path within the first set of path based on the response from the ATPG tool (§ 3).

14. Pursuant to claim 14, further comprising translating the first set of paths (§ 3, the batch files).

15. Pursuant to claim 15, further comprising after receiving the first set of paths, extracting a second set of paths from the first set of paths (§ 3, the set of critical paths

that are output from STEP), wherein the set of conditions corresponds to at least one path of the second set of paths (§ 3, the specification of the particular transition along each path).

16. Pursuant to claim 16, wherein the set of conditions comprises at least one of final value conditions, initial value conditions, side propagation value conditions, and slower path conditions (§ 2).

17. Pursuant to claim 17, wherein the response to the set of conditions from the ATPG tool indicates whether the set of conditions is satisfied (§ 2).

18. Pursuant to claim 19, wherein the ATPG tool is a commercially available ATPG tool (see Abstract).

19. Pursuant to claim 20, wherein receiving the first set of paths comprises receiving the first set of paths from a static analysis tool (§ 3).

Allowable Subject Matter

20. **Claim 18** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

21. **Claim 11** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

22. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach the extraction of paths having no multiple path

components. Additionally, the prior art does not teach feedback of the false path report to the static analysis tool.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please reference the PTO-892 for a complete listing.

24. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to A.M. Thompson whose telephone number is (703) 305-7441. The Examiner can usually be reached Monday thru Friday from 8:00 a.m. to 5:00 p.m.. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew S. Smith, can be reached on (703) 308-1323.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956 or the Customer Service Center whose telephone number is (703)306-3329.

25. Responses to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9318, (for **OFFICIAL** communications intended for entry)
(703)872-9319, (for Official **AFTER-FINAL** communications)

Hand-delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

A. M. THOMPSON
Patent Examiner



24 March 2003